

# CHEMPHYSICHEM

## Supporting Information

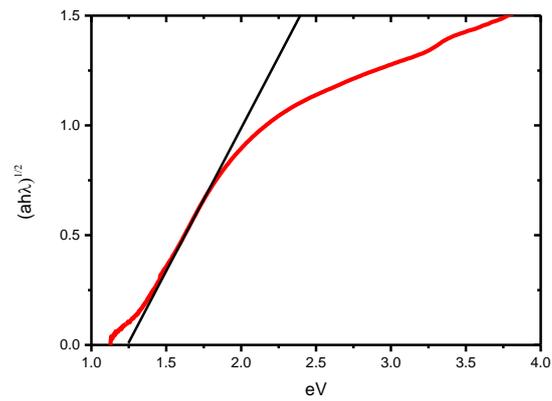
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### **Solution-Processed Mesoscopic Bi<sub>2</sub>S<sub>3</sub>:Polymer Photoactive Layers**

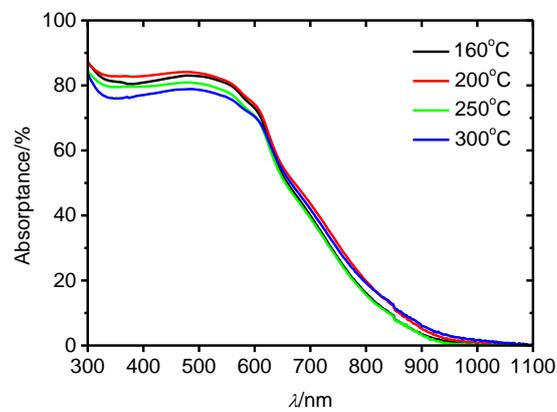
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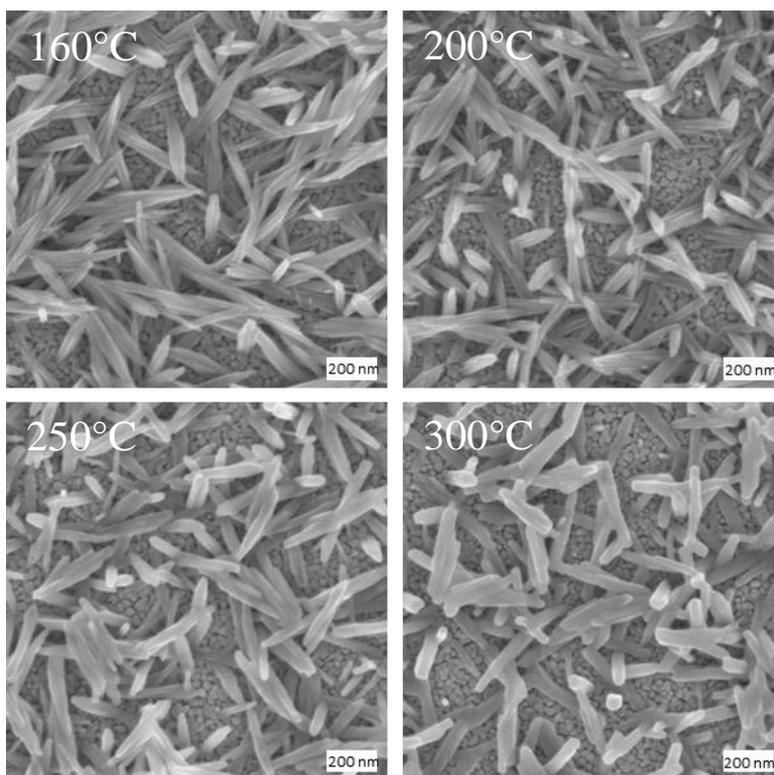
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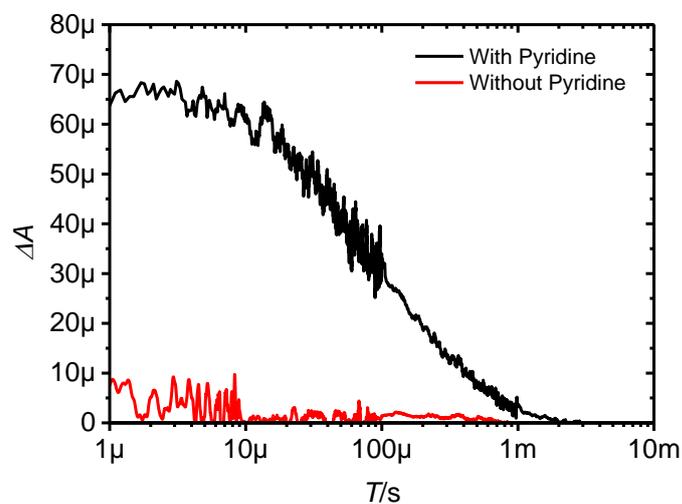
**SI Figure 1.** Tauc analysis for an indirect bandgap material performed on a typical  $\text{Bi}_2\text{S}_3$  film giving an estimate for the bandgap as  $\sim 1.25$  eV or 990 nm.



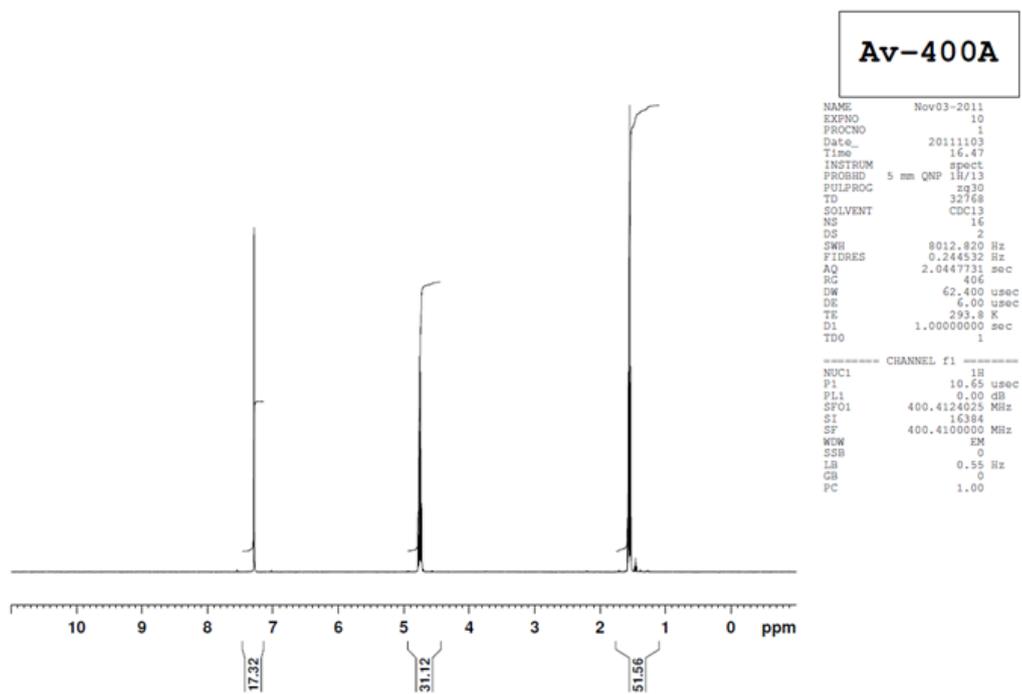
**SI Figure 2.** Absorbance of films annealed at different temperatures showing no change in bandgap.



**SI Figure 3.** Top-down scanning electron microscopy (SEM) images of Bi<sub>2</sub>S<sub>3</sub> films after annealing at various temperatures.



**SI Figure 4.** Transient absorption kinetic decays of Bi<sub>2</sub>S<sub>3</sub> films annealed at 300°C and infiltrated with P3HT with and without a soak in pyridine.



**SI Figure 5.**  $^1\text{H}$  NMR of bismuth ethylxanthate in  $\text{CDCl}_3$